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Sport commitment differences among
shooting athletes on the basis of skill
level:
Study of Mongolian target shooting
athletes

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Abstract

Sport commitment differences among shooting athletes on the basis of skill level: Study of Mongolian target shooting athletes

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Sport commitment is psychological state representing the desire or resolve to continue participation in specific sport or sport in general and represents an athlete's psychological states of attachment to their participation. Through the committed motivation for sports participation, individuals form their activity choices, how much effort they put forth in sport activity-related endeavors, and how long they persist, particularly in the face of obstacles and failure.

Objective: The purpose of this study was to investigate potential differences in the levels of the supported Sport commitment model (Scanlan et al., 1993, 2016) variables on the shooting athletes basis on the skill level. Direct comparison of the commitment factors between three skill level of shooting athletes will allow coaches, practitioners, and managers to understand the athletes' commitment characteristics for their sport, thereby will help to increase the retention and skill level further. For the target

shooting sport which requires a great amount of devotion and commitment from individuals, it is crucial to understand each level athletes' commitments characteristics in order to optimize for structuring the sports program to motivate not only the grassroots level, but also inspire elite level performance. For that reason, the current study examined the sport commitment differences of shooting athletes with a different level of skill.

Design: Drawing on the literature reviewed as an underpinning framework, the survey questionnaire was designed which was administrated to competitors attending National Shooting Sport Championships 2018. Based on the Sport commitment model (Scanlan et al.,1993; 2016), the assessment tool (SCQ-2 questionnaire by Scanlan, Chow, Sousa, Scanlan, & Knifsend, (2016)), 12 sources commitment supported by 58 items, extracted and validated from the research of Scanlan et al., (2016), is employed to measure the shooting athletes' commitment.

Methods: The Cronbach's alpha for the scale of 0.819 suggests that there is an internal consistency within the scale. A one-way between subjects ANOVA was conducted to compare respondents on sport commitment and its determinants self-reported beginner, intermediate, and advanced skill ratings as defined by the Mongolian Shooting Sport Federation's mastery category (MSSF, 2017). In the study, the surveys were distributed to 203 athletes who were participated in Mongolian National Shooting Sport Championships 2018. A total of 142 surveys were returned, of which 114 were deemed usable (response rate = 56.1%).

Results: A one-way ANOVA analysis revealed significant differences among 7 (out of 12) sport commitment variables between skill levels. Significant differences existed across the groups by the variables of Other priorities [$F(2,111)=3.775$, $p=0.026$], Personal Investment Quantity

[F(2,111)=8.767, $p=0.000$], Personal investment loss [F(2,111)=4.249, $p=0.017$], Social support informational [F(2,111)=4.465, $p=0.014$], Desire to excel mastery [F(2,111)=6.490, $p=0.002$], Desire to excel social [F(2,110)=7.653, $p=0.001$], Enthusiastic commitment [F(2,110)=10.450, $p=0.000$]. Moreover, result shows that beginner shooting athletes reported a significantly higher level of personal investment loss, social support informational, and enthusiastic commitment than other two groups. Intermediate athletes in the study were scored particularly higher for other priorities and desire to excel mastery. Advanced athlete group was higher scored in personal investment quantity and desire to excel social variables.

Keywords : Sport commitment, Sport commitment model, athlete skill level, shooting sport

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Chapter 1. Introduction

1.1. Sport Commitment

An operational definition of commitment has varied greatly in the literature due to the research context and objective of each investigation. Commitment is generally agreed as defined by study of Becker (1960) that it refers either to conditions which help explain a person's persistent course of action or to the stability and persistence of relationship. Kelley et al., (1983) determined commitment as a general psychological state, a specific intention, and a specific behavior. An individual can be committed for two major reasons: "because they want to" persist in an endeavor; and "because they have to" continue participation (Johnson, 1982). Wanting to continue is reflected in feelings of satisfaction and self-identification with specific relationship or activity while having to continue is typified by social pressures or constraints (Carpenter, Scanlan, Simons, & Lobel, 1993).

Kelley's (1983) conception of commitment is offered close relationships to explain individuals' participation motives and behaviors in sports and its relevance to sport is discussed as "sport commitment". Therefore, sport commitment is psychological state representing the desire or resolve to continue participation in specific sport or sport in general and

represents athlete's psychological states of attachment to their participation (Scanlan, Simons et al., 1993).

One way to consider sport commitment components is that it may define sport participants or athletes' sport participation purpose and goals to aim further, as well as may play major role for whether they achieve and keep the master level in future. Another concern is to anticipate or to prevent the drop out of athletes by their sport commitment factors. By using the commitment characteristic, anticipated motivation is needed from the side of the coaches, parents, and clubs by forming the strategies to increase retention rate and need to understand why athletes drop out (Chu & Wang, 2012). Despite the many perceived benefits of participation, athletes also withdraw, especially from the competitive sports. Not only the half of the individuals who start participating in sports drop out shortly after starting (Dishman, 2001), but also the athletes who consistently invested their time and efforts through a certain period, mostly drop out. Therefore, commitment resources varying across different athletes context may help to develop further programs which can contribute to optimize the sport participation and sport performance.

The estimation and prediction of individuals' drop out or continuing for sports based on their commitment characteristics shown promising results

(Alexandris, Zahariadis, Tsorbatzoudis, & Grouios, 2002). Because motivation for the participation of individuals forms their activity choices, how much effort they put forth in sport activity-related endeavors, and how long they persist, particularly in the face of obstacles and failure (M. R. Weiss & Ferrer, 2002). Apparently, people, whoever is young and old, participate in sport and exercise, because they like to strive to achieve and experience feelings of competence, they want to be with their friends and meet new people, and they see opportunities for increasing fitness and social achievement while having fun and enjoyment. Similarly, when athletes are asked why they participate in sports, regardless of age, their responses generally fall among the following categories: fun, competence, affiliation, fitness, and excelling in sports to achieve their personal and social goals (Williams, 2013).

In order to form strategies to improve the retention rate of athletes in sport, coaches and practitioners need to understand how individuals differ by their commitment to the sport activity and how it results in athletes' participation activity and skill level achievement. However, many studies interpreted the differences of sport commitment of individual athletes, the present study examines the sport commitment characteristic of the athletes who have been obtained already some expertise skill level in sport through

their committed training and recently practicing with different level of skill. This researches is connected gradually to the academic knowledge in this field and gives more extended clear picture of it. The country who is willing to improve both sport participation and performance level, Mongolia is investigated in the research to implement the best theory and practice of the knowledge to the sport development of the country.

1.2.Mongolia: Geography, Demography, and Sport

Mongolia is located in north-central Asia, between Russia and China, at 1,564,116 square km, 18th largest and the most sparsely populated country in the world, with a population of 3 228 200 people (NSO of Mongolia, 2018). Mongolia consists of 21 provinces and 1 national capital Ulaanbaatar, which is home to about 45% of the country's population. 71.8 % of the population is urban (2,209,488 people in 2017). Quite young population with median age of 27.4 years (“World population review (2017)), Mongolian citizens are needed to promote an active and healthy lifestyle, as well as by the way of increasing citizens’ participation in sports.

In all countries, sport originated from their prehistoric culture, geographical specialty, and people’s life style. However, the development of modern sport is closely associated with 20th century, Mongolia has a long

prehistory and a longtime remarkable history on their traditional sports. Mongolians educated their citizens from a very early age by way of traditional sport games such as horse racing, archery and national wrestling. These traditional sports played a central role in developing strong and intellectual individuals who were able to contribute to making powerful society through the centuries (Mongolian Empire, formed in the early 13th century by Chingghis Khan, and his successors controlled a vast empire that included much of China, Russia, Central Asia, and the Middle East (O.Lattimore et al., 2018)).

From middle of the 20th century, with the influence of the Soviet Union and socialism, Mongolians started to play modern sports such as football, basketball, volleyball, ice hockey and other sports. This brought Mongolians a culture of involvement in various sports and all people had an obligation to participate in sports tournaments within and between organizations and schools. Monthly matches made almost everyone to be in good enough condition to participate in at least two hours of sports such as volleyball, soccer, table tennis and basketball matches.

Currently, all sports organizations which governs and promotes sport related activities in Mongolia are classified as both public and non-government organizations under regulation of the Physical Culture and Sports

law which is firstly acknowledged by Parliament of Mongolia in 2003. Most of the responsibilities for sport development of the country and regulation of the regional and local branches of sport authorities are carried by The State Physical Culture and Sports Development Agency and Mongolian National Olympic Committee. The Mongolian government had pushed the people to practice via sports and motivated everyone to be healthy as its current objective on sport is to increase the life expectancy of the population by promoting physical fitness and sports as a part of healthy lifestyle among citizens, as well as to improve sport performance both at international and local levels.

1.3. Shooting sport in Mongolia

Shooting is counted one of the popular sports in Mongolia by its successful representation of the country in the international sports field over the years. As Mongolians represented in its very first participation in Summer Olympic games, Tokyo 1964, 3 shooters were included in total of 21 athletes from the country (Jantsankhorloo (2005)). Shooting sport has been contributed to the development of Mongolian society through its increased sport participation and sport education of young and female athletes.

Current implementation of professional coaching, management of modern equipment, Mongolian shooting brought to its athletes the

opportunities to be trained in international level and made huge progress in shooting sport development of the country. The sole governing body which is responsible for organizing and promoting shooting sport across the country, Mongolian shooting sport federation, accredited by the Ministry of Sports and Education and International Shooting Sport Federation (ISSF), has a public service mission and its budget is mainly based on sponsor's investment and state funding for maintenance of facilities and athletes' training (Mongolian Shooting Sport Federation (2016)).

Following the women's first bronze medal in Summer Olympic Games, Barcelona, 1992, Active sport players grown and pushed emergence of new shooting clubs since women's first bronze medal in Summer Olympic Games Barcelona 1992 and later by silver medal in Beijing 2008. Seeking the appropriate and productive way to promote the shooting sport and enlarge its capacity were the crucial initiatives of MSSF through the years. Based on its state financial support and sponsors' investment, MSSF have remarkably improved the techniques and equipment of shooting. Between 2009-2012, as reported (Mongolian Shooting Sport Federation (2012)), 11 new shooting sport clubs and branch federations in provinces were newly established and recruited more than 300 athletes.

Why people attend in the shooting sport are related to, similarly to all other sports, its enjoyment and opportunities of personal growth and social harmony which individuals hugely benefit. Together with, shooting develops self-discipline, confidence, analyze making, problem solving skills, and commitments to self-improving activities (Robert, 2010). While shooting athletes are learning consistent and proper technique through firing one shot after another with huge effort to shoot in more tens and hitting more targets, it happens the process of skill improving (Riesterer, n.d. 1993). It adds the foundation of confidence, and specially for young people who start shooting learn the importance of commitment as a key ingredient to success which carries over to our daily lives and develop the “I can do this” attitude. Those who reach a pinnacle in an avocation or occupation have an undying commitment to their effort they make success not only in sport, as well as in the classroom, workplace or family requires a dedicated commitment to that effort (Robert, 2010). Commitment may start by showing up at the range for every available practice session in shooting, and even foregoing opportunities to practice and compete in important big events, and later to life decisions as career and relationship decisions. Those who earn through their practice in sport and place in the awards podium make a full commitment to their sport.

1.4. Statement of Problem

Nevertheless, the emphasized benefits of sports as well as shooting sport, the level of participants' drop out from sports is becoming a critical issue in the current society. Despite that Mongolian Government is greatly increasing the funding for high-performance sports in the late decades, recruitment of grassroots and retention of current athletes in high performance level is matter in question.

According to Overview Report of the Mongolian Government Agency of Physical Activity and Sport (NSO of Mongolia, 2017) which is produced by a partnership of eighteen provinces and cities' government units and 71 sports federations, shows serious changes in sport participation level in last 3 decades. Statistics of 2017 shows that total 17,818 people have belonged to beginner level athletes in 71 different sports with a variety of sub-categories including, but not limited to team and individual sports, outdoor and indoor sports like volleyball, basketball, wrestling, judo, shooting, archery, sport fitness, action sports, golf, tennis, and much more. Since the Government of Mongolia emphasized research on the sport management field, this report was the first initiative which covered and accumulated sports data from the whole country after 1990.

Whereas sport participation report of 1990 report, the people and athletes who belong to sport beginner level and novice athletes, were counted by 78,768 in 1985 and 91,097 in 1990 (MNSO, 2017). Compared to the 40% growth of Mongolian population six and older, universally accepted age group which can involve in sports, current (2017) beginner athletes number decreased by 5 times from 1990 (NSO Mongolia, 2018) to 2017. Therefore, the number of participants in competitive sports shows drastic decrease and recruitment for grassroots level is weak through the country.

While beginner athletes decreased greatly, a little more optimistic statistics were obtained from the intermediate and advanced (elite) level athletes. The number of athletes who belong to the intermediate (expert) and advanced (elite) level is kept the number by 5,462 in 2017 from the result 2,238 of 1990, comparing to the population growth. Total 566 are practicing in high-performance elite level and 4196 are in intermediate performance level.

Shooting sport participation shows similar trend to the sport participation of the national level. Though the Mongolian shooting sport federation (MSSF) implements various programs and provides by educational and financial resources to promote the sports, there have been instances of decreasing the participation and increasing the number of drop

out of all level athletes from the shooting sport. Regardless of investments and emergency of new clubs between 2004-2016, enormous drop out level of shooters challenge the coaches, managers, and MSSF for its funding efficiency (MSSF (2016)). Apart from certain number of athletes are trained in all level of clubs and achieved particular successes international events, it shows that proper scientific research and its implementation are the gap.

1.5. Purpose of the study

As highlighted by research and practices, sport can serve as a vehicle for the transmission of knowledge, values, and norm which are the key development factors of the individual and community. Piles of researches on different populations have shown that there is a general acceptance that sport has positive value for every society when it emphasize on participation, involvement, and performance achievements. As Wankel and Berger (1990) concluded by the systematic assessment of sport potential positive outcomes, sport gives the benefit to individuals and society a personal enjoyment, personal growth, social harmony, and social change.

Therefore, to motivate people to participate in sport and pursue in excellence it is desirable to understand about sport participants as well as possible. One attempt to improve our understanding of sport participants' aspect is to study sport participants' commitment characteristics for

maintaining in sport. Here this research consequently was purposed to study sport commitment differences among the athletes with different level of skill narrowing to beginner, intermediate, and advance shooting athletes.

Even though, previous researches have been studied the sport commitment value comparison using Scanlan et al., (1993) sport commitment model with 4 variable values, but no other studies have been used expanded Sport commitment model (Scanlan et al., 2016) to compare same sport athletes with different skill level. Furthermore, there are no literature in Mongolia which emphasize the importance of sport commitment to discover the motivational basis of athletes and access it for promoting retention level. Findings of this study, therefore, hopefully contribute immensely to the following concepts:

- i. Academic literature in sport motivation and commitment. From the findings of the study, coaches will learn how to identify the individual athletes' commitment while defining their commitment characteristics in various level. Adoption of the literature and methods would give encouragement for long-term participation and increase elite level athletes and performance. Applying the academic research will help in the recruitment of the new athletes, understand the beginners' motivational psychological state and, support the grassroots level.

ii. Increasing the efficiency of the resources: Being aware about athletes' commitment and obtaining proper method to increase retention level can help to improve efficiency of public budget funding on sport. Public budget is spent to promote elite and high-performance sports including athletes' training camp, techniques support, and international event costs. That huge amount of costs, spent on competitive athletes rather than sport for all, unfortunately, ends with the half of the number of competitive athletes' drop out of the sports. Defining the commitment characteristics of the individuals will help the sport organizations to distribute the budget for more efficient promotion method which supports the cost efficiency.

iii. Promoting the participation and involvement in sports: Understanding the beginner level athletes commitment to sports will help to recognize why people initially start to practice by sport and what commitments they have in their first stage in sports. Moreover, absorption of intermediate and high-level athletes' sport commitment value gives practitioners to make the clear analysis on how to motivate and inspire the athletes to higher levels and understand the athletes' psychological state of being continued in sports.

iv. Strengthen the retention level: Finally, the present research presents set of commitment characteristic of each skill level athletes. On the basis of these results, the study can contribute to the recruitment and retention level

of the shooting sport. As study population has ability to represent athletes' population of the country, the researcher hope to provide useful knowledge resources to Mongolian sport in general.

1.6. Research Questions

The research was guided by the following Research Questions:

RQ 1: What are the sport commitment differences among elite, intermediate, and beginner skill level athletes?

RQ 2: What are the most predicted commitment variables for continuation of athletes in participation and master into elite level?

Chapter 2. Literature Review

2.1. Previous Researches on sport commitment

Subsequent continuous endeavor by scholars and practitioners with regards to sport commitment components in various sports' participation and expertise level provide improved recommendations and methodologies for further researchers, administrators, coaches, and sport leaders. Some sport organizations, national federations, and coaches have adopted the essentials of research findings to their works. Throughout this study, the researcher had examined the studies of renowned scholars whose researches have contributed towards shaping the theoretical model of sport commitment and its various application in different context of sports.

Among existing theories, the Sport commitment model (SCM; Scanlan, Carpenter, Schmidt, Simons, & Keeler, 1993) is a widely accepted conceptual framework for understanding the individual's commitment for sport. According to Casper and Andrew (2008), the SCM was derived from the social exchange theory (Kelley & Thibaut, 1978; Thibaut & Kelley, 1959), Kelley's (1983) model of romantic relationships, and Rusbult's (1980, 1983) investment model. The SCM (Scanlan et al., 1993) was based on evidence that enjoyment, involvement alternatives, social support, social constraints, and personal investment are key factors in loyalty and commitment to sports

(Carpenter, Scanlan, Simons, & Lobel, 1993; Scanlan et al., 1993; Scanlan & Simons, 1992; Weiss, Kimmel, & Smith, 2001; Wilson et al., 2004). Iwasaki and Havitz (2004) also found that commitment is the key to increased behavioral involvement and loyalty.

The numerous earlier researches associated with the Sport commitment concept which reviewed varied topics through the theory have contributed for current study. According to Scanlan and Simons (1992), the SCM includes three important features (Casper & Andrew, 2008). First, it addresses psychological attachment to an activity and does not involve estimations of the actual probability (e.g., intentions). Further Casper and Andrew (2008) mentions that sport commitment is a product of both cognitive and affective factor and SCM is able to distinguish differing psychological states of participants who may report equal levels of commitment. In the sport commitment area, amid of significant studies had been made such as competitive youth athletes (Carpenter et al., 1993; Scanlan et al., 1993; Weiss, Kimmel, & Smith 2001), different group of sport expertise people (Helsen, Starkes, & Hodges, 1998), exercise and fitness commitment (Alexandris, Tsorbatzoudis, & Grouios, 2002), occupational intention to quit among referees (Van Yperen, 1998), coaching commitment and turnover (Raedeke, Warren et al., 2002), athletes burnout (Raedeke,

1997), and elite athlete commitment (Scanlan et al., 2003). Apart from that, there are subsequent researches made to explore commitment for sport activity impacts and one's motivation for involvement (Williams, 2013).

In addition, among the studies which assessed the levels of sport commitment and interpreted its determinants on populations, includes researches on amateur youth athletes (Scanlan et al., 1993), elite professional athletes (Scanlan, Russel et al., 2003), commitment differences among tennis players (Casper, Jonathan M; Andrew, 2008) and competitive differences of high school and collegiate level tennis athletes (Weiss et al., 2015). Hence there are only a few studies which examined the potential sport commitment differences among different skilled athletes of competitive sport. Therefore, the study investigates beginner to elite level athletes sport commitment features and revises the plenty of literatures.

2.1.1. Sport commitment model (SCM)

Scanlan et al (1993) introduced the theoretical model of sport commitment to examine the motivation underlying persistence in organized sports including youth and adult sports which encompass a full range of competitive contexts from recreational to elite. It stated that if intervening factors for athlete's participation, for example, an injury, insufficient free time, or a family move are considered carefully, the sport commitment will

be a powerful predictor of actual participation pattern in sport (Scanlan et al., 1993).

Sport commitment is psychological state representing the desire or resolve to continue participation in specific sport or sport in general and represents athlete's psychological states of attachment to their participation (Scanlan, Simons et al., 1993). The initial Sport Commitment Model (Scanlan, Simons et al., 1993) defines five factors which are hypothesized to impact on individual's commitment on sport, reflecting a range of causal conditions (Kelley et al., 1983) and may be interrelated to each other. The five components cause an increase or decrease individual's commitment in sport are sport enjoyment, involvement alternatives, personal investment, social constraints, involvement opportunities (Scanlan et al., 1993). Each component is predicted to influence sport commitment independently and magnitude of influence for each predictor variable is expected to vary across diverse athletes, especially athlete groups recreational to elite.

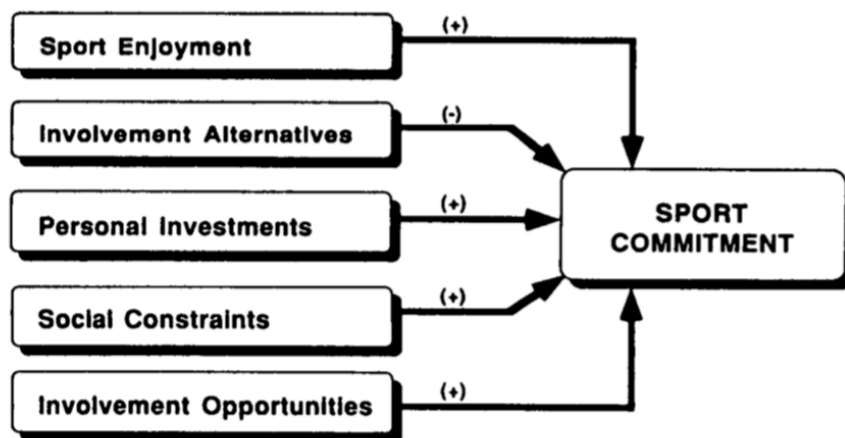


Figure 1. Sport Commitment Model (Scanlan et al.,1993)

The plus (+) and minus (-) signs presented in this diagram represent the direction of influence of each component on individual's commitment to sport. A plus sign indicates that the component promotes greater commitment, while minus sign shows that the factor works reduce commitment as its rating increases (Scanlan et al.,1993).

2.1.2. Determinants of Sport Commitment Model Constructs

It is crucial to clarify the definitions of commitment terms and components to understand and apply the framework. As defined in the model, *sport enjoyment* is the positive and affective response to a sport experience and major attraction variable for athletes, which reflects generalized feelings such as pleasure, liking or entertainment (Scanlan et al., 1993). By using the sport enjoyment as an attraction variable, it could be focused the causal

condition of sport commitment completely on the affective experience on an important to motivation in youth and elite sport. Because, youth athletes consistently have identified the desire for enjoyment or fun as an important motive for participating in sport, and lack of enjoyment as a particularly significant reason for dropping out. More enjoyment is expected to be related to more sport commitment (Carpenter et al., 1993).

Involvement alternatives are defined as the attractiveness of the most preferred alternative(s) to continue participation in the current sport activity (Scanlan et al., 1993). As further defined, alternatives are opportunities to engage in other activities such as band and club other than sport. While involvement alternatives construct considers the desirability of the alternative(s) in relation to that of participating in the current sport activity (Carpenter et al., 1993). Having more attractive alternatives is predicted lower level of individual sport commitment. In most youth sport cases, athletes are able to participate in several programs without sacrificing their sport participation, so alternatives may not be a significant factor in these athlete's commitment (Scanlan et al., 1993).

Personal investment is reflected as personal resources *as the time, effort, and money* that are put into the activity which cannot be recovered if participation is discontinued (Scanlan et al., 1993). Generally, investments

are considered an implicit aspect of involvement in any activity and any benefits of sport participation come at the expense of some investment. The demands of the various program or sport will define the particular types of investment that maybe prominent to participants. For example, shooting sport requires the specific types of investments such as large amount of time devotion and can make greater financial demands on athletes and their families. As people become more psychologically attached as they allocate increasing amount of resources to their participation (Rusbult, 1983), it is hypothesized that greater personal investment will promote greater sport commitment (Scanlan et al., 1993).

Social constraints are defined as social expectations or norms which create feelings of obligation to remain in the current sport activity (Scanlan et al., 1993). The constructs of this factor specifically addresses the sense of social pressure to participate and derived from Becker (1960)'s the cost of termination. If an individual perceives the more pressure to continue that from others, the greater his or her commitment on that activity (Scanlan et al., 1993).

Involvement opportunities are the anticipated benefits one receives through only continued participation, such as chance for mastery, social interaction, and fit physical conditioning (Casper & Andrew 2008; Scanlan

et al., 1993). It depends on the belief in program that playing in the program is the only way to remain it (Scanlan et al., 1993). The factor focuses on the anticipation of events or experiences and opportunities might be realized due to close temporal sequencing of events. As defined Scanlan et al., (1993), an athlete may feel she would miss out on anticipated good times derived from participating in the program if he or she left. Therefore, it is assumed that higher ratings of involvement opportunities will be related to higher sport commitment.

Those above mentioned SCM (1993) five components successfully tested in the model with studies of an assessment conducted with sample athletes with certain experiences in their sports program (Scanlan et al., 1993). Further, in researches suggested, updated studies should be continued with Sport Commitment Model Expansion and thereafter additional supportive few factors were included and accordingly name of the previous factors slightly changed and referred as an expansion of the model.

2.1.3. Sport Commitment Model expansion

Original sport commitment model (Scanlan et al., 1993) was expanded by the expansion model with several modifications more recently. As stated prior, the original Sport Commitment Model (1993) contained five sources of Enthusiastic commitment, (formerly, Sport commitment): Sport

Enjoyment, Valuable opportunities (formerly Involvement opportunities), other priorities (formerly, Involvement alternatives), Personal investment, and Social Constraints (Scanlan et al., 2016). The model expansion specifically added two new sources (Social Support and Desire to Excel) and a new candidate type of commitment (Constrained). Social Support has been added to the model as a predictor of commitment (Scanlan et al., 2009) based on prior quantitative (Carpenter et al., 1993) (e.g., Carpenter, 1992; Carpenter & Coleman, 1998; Weiss & Weiss, 2007) and qualitative research findings. (Carpenter et al., 1993; Scanlan, Russell, Beals, & Scanlan, 2003)

As a source of Enthusiastic Commitment from in-depth interviews with elite athletes (Scanlan et al., 2013), the Desire to Excel construct was derived. Constrained Commitment has been added to the SCM as a second type of commitment to provide a more complete picture of the commitment process and to further explain why athletes persist in sport (Scanlan et al., 2016). Importantly, individuals can be both functionally and obligatorily committed to an activity at any point in time, and levels can change or fluctuate over time (Brickman, 1987). Constrained Commitment and Enthusiastic Commitment represent the functional and obligatory types of commitment (Scanlan et al., 2016).

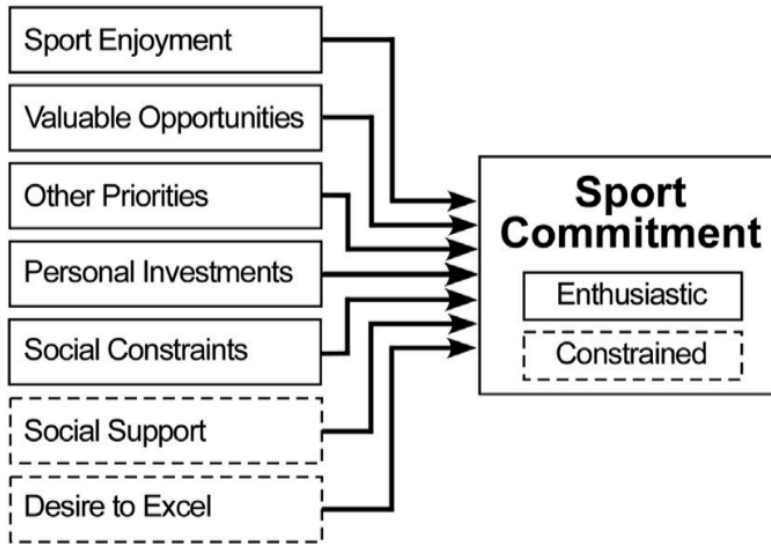


Figure 2. Model used for the development of the SCQ-2

The model contains sources of commitment that predict two types of commitment which illustrated in the Fig1 as theoretical model. Solid boxes represent previously established components which assessed in original SCM (Scanlan et al.,1993), and dashed boxes reflect new candidate constructs identified for model expansion by Scanlan, Russell, Myagmar et al., (2009).

The definitions for each model construct, including its subcategories are increasingly supportive to define the individuals' commitment. *Enthusiastic Commitment* is the psychological construct representing the desire and resolve to persist in a sport over time. It was developed by using a combination of prior items from the original SCM (Scanlan, Carpenter et al., 1993) and newly generated components.

Constrained Commitment is the psychological construct representing perceptions of obligation to persist in a sport over time. Directly measured Constrained Commitment studies have used items emphasizing the extent to which individuals feel duty bound, obliged, forced, and compelled to continue an activity (Scanlan et al., 2016). The construct is further extended to include other forms of constraints such as feeling trapped in sports, sensing that one has to continue a sport, and believing that it is necessity to continue in sport.

Sport Enjoyment is the positive affective reaction to a sport experience that reflects generalized feelings of joy. In the expansion model, only slight modifications were made and four items nearly synonymous as enjoy, happy, fun, and alike were selected to subscale. Moreover pleasure and love were included to reflect a wider range of positive affective responses for measure (Scanlan et al., 2016).

Valuable Opportunities mean that important opportunities that are only present through continued involvement in a sport. These valued opportunities can be ongoing or seldom occurring anticipated experience or events. In developing Valuable Opportunities items, participant would rate his or her feeling about “missed” opportunities such as in case if he or she quit the sport, whether miss the coach, friends, or events. To extract the

factors and prevent the misinterpretation of the terms, the quantitative and qualitative researches were made and defined specific opportunities as travel, job opportunities, performance recognition, friendships, and competitive achievement (Scanlan et al., 2003, 2009).

Other Priorities are attractive and/or pressing alternatives that conflict with continued sport participation. Using interviews Scanlan and colleagues (Scanlan et al., 2003, 2009, 2013) found that job, family, education, boyfriend/girlfriend, travel, friends, and other sports as other priorities and that could be attractive or pressing, or both. In the model, measures mostly argued as “other thing in my life” (Scanlan et al., 2016).

Personal Investments-Loss is implied that personal resources put into a sport that cannot be recovered if participation is discontinued. Personal Investments-Quantity are the amount of personal resources put into a sport (Scanlan et al., 2016). Many athletes invest substantial amounts of personal resources which strengthen their commitment, but the motivational function of the loss aspect is complex and for the people who reject the notion of loss indicate that the construct has no effect on their commitment (Scanlan et al., 2003, 2009). On that account, to provide more complete assessment, two different measurement approaches useful. First is the amount of personal

resources athletes put into their sport and second is more directly to the notion of loss.

Social Constraints are social expectations or norms that create perceptions of obligation to remain in a sport. Already knowing the significant others who can create feelings of obligation or force to participate allowed to measure Social Constraints in more general terms in athletes. The difference from original SCM, “important to me” and “have to” concepts are included in some of the items (Scanlan et al., 2016).

Social Support-Emotional is stated that the encouragement, caring, and empathy received from significant others in a sport. Social Support-Instrumental is the provision of material resources or task assistance received from significant others in a sport. To identify the Social support, two approaches are used to assess. One method reflects general approach where participants rate the extent to which significant others, as a whole, the other reflects a specific approach where athletes rate the degree of support and encouragement received from other significant people including coaches, parents, teammates, and close friends (M. R. Weiss & Ferrer, 2002). There are several types of support that significant others provide are commonly identified as an emotional, informational, and instrumental.

Desire to Excel-Mastery Achievement is a desire to Excel-Mastery

Achievement. Desire to Excel-Social Achievement means that wanting and/or striving to win and establish superiority over opponents in a sport. These new candidate to the SCM were included by qualitative research with elite team sport athletes and were applicable to a variety of sports (Scanlan et al., 2016). Desire to excel includes two subcategories as Mastery Achievements and Social achievements. Mastery achievement is related to process of mastery and one's desire to reach high potential through setting mastery goals, and striving to improve; whereas Social achievements is related to winning and establishing superiority, and includes aspiration to outperform opponents (Scanlan et al., 2013)

The expanded SCM predicts that all sources of commitment strengthen Enthusiastic Commitment with the exception of Other Priorities, which decrease it (Scanlan et al., 2016). Although Social Constraints is hypothesized to be a positive predictor of Enthusiastic Commitment, there have been inconsistent findings with some studies showed no effect (Scanlan, Carpenter et al., 1993; Scanlan et al., 2003; Sousa, Torregrosa, Viladrich, Villamarín, & Cruz, 2007) or a weak effect (Carpenter & Scanlan, 1998; Carpenter, Scanlan, Simons, & Lobel, 1993). Also Constrained Commitment is a new addition to this version of the SCM, there are some researches made regarding its sources. Additionally, studies found that Social Constraints,

Other Priorities, and Personal Investments were positively associated with “have to” obligation or they refer to the emotional comfort, pride, information, and financial support received by an individual from a group of people (He, 2008).

2.2. Sport Commitment and Shooting Sport

Applying the Sport commitment model (1993; 2014) a multitude of research have explored sport commitments characteristics in different concept of sports by measuring and validating constructs in each, but no study has examined the potential sport commitment differences between different skilled athletes, specifically only in competitive sport concept such as target shooting sport which requires a great amount of devotion and commitment from individuals. For that reason, the current study examines the sport commitment differences of athletes with different level of skill in target shooting sport concept.

Currently, in the world, sport shooting is counted as one of the sports with higher participation level globally. Looking through statistics of most participants' countries, for example, by the survey of US, there is estimated 10.7 million adults and youths participated in any type of shooting sport in 2016 (NSSR, 2016). One of the oldest federation in shooting sport, with its foundation in 1861, Germany shooting association has 15,000 clubs and

about 1,5 million members. As of 2011 (DSB, n.d), about 300.000 children and young people are all members of the German Shooting Youth and trained by specially qualified and voluntary sport coaches.

One of the reasons which made shooting sport as with high participation rate competitive sport is its long tradition and history. Shooting at a mark as a test of skill had its beginnings long before the invention of firearms (1300 A.D). It is reasonable to assume that some 50,000 years ago, first archers may have let their arrows fly at a practice target to prove their ability and accuracy of their equipment (Singh, 1993). Certainly, target archery with the longbow and the crossbow was a widespread sport in much of Europe, Asia, and the Far East as early as the 15th Century. However, it is unknown whether sport shooting existed coevally with the use of guns in warfare, game shooting with firearms is recorded as early as the 16th century and matchlock guns had been in use almost 100 years (Singh, 1993). With the help of the matchlock, fired by a match or wick and controlled by a trigger, shooters were firstly allowed to take aim at accurate targets. Soon thereafter, around the end of the 16th century, fired by a spark, the rifled wheel lock and formal target shooting sport appeared (USA Shooting, 1996).

Since Modern Olympic games reinvented, Sport shooting has been recognized as one of the first sports in modern Olympic Games in 1896,

Athens (OSCentre, 2017). At the Paris Congress held in June, French educator and historian, as well as pistol champion and founder of the modern Olympics, Pierre de Coubertin's desire was expressed for shooting to be on the Olympic program (ISSF, 2016). This fact certainly contributed to the inclusion of first five shooting events in the 1896 Olympics (OSCentre, 2017). Only with the exceptions of the St. Louis 1904 and Amsterdam 1928 Games, shooting sport has been featured on every Summer Olympic program (ISSF, 2016).

During the 19th century, earlier forms of organizations such as shooting clubs developed into national shooting federations starting with mostly among European countries. Société Suisse des Carabiniers was founded in 1824, Switzerland and The British National Rifle Association inaugurated by Queen Victoria in 1859. While Deutscher Schützenbund in 1861, and National Rifle Association of America (USA) was established in 1871. The Federation Francaise des Societies de Tir was formally founded in 1884 (ISSF, 2017). These earlier National Governing bodies had been contributed to the formation of international governing body as Union of National Shooting Federations (UIT).

Therefore, shooting was accepted as a sport in every continent (ISSF, 2016) since 1909 and over the years, the shooting events have been changed

a number of times in following the evolution and development of technology and social standards. For example, targets that formerly resembled, at those earlier times, humans or animals in their shape and size are now a circular shape in order to avoid associating the sport with any form of violence (Shooting, 1996).

2.2.1. Factors affecting in shooting sport

The shooting sport is strongly related to sports psychology in the sense of concentration, senso-motoric accuracy, confidence, attention and eye-hand coordination which play an important role while shooting (Singh, 1993). By concentration, shooters learn to focus as not forcing one's attention on the task and gradually it helps to prevent any stimuli that might penetrate and disturb athlete's focus of attention by distraction by itself or outside factors. Building the skills the ability to concentrate and perform accurate, and, like any other skills, it can be developed and improved through the technical training with different methods and exercises of shooting .

Meanwhile the physical endurance ability is hugely required. All disciplines of competition shooting sport are characterized by numerous repetitions of the shots. Over longer period of time, the same muscles, connecting tissues, and joints are activated. This results physical stress for the athletes and requires high percentage of static muscle activity to control stable

body position during the aiming process. This requires an active compensation of the training program (Kindler & Riesterer, 2004).

Alongside the high level of psychophysical abilities, the shooting sport results also depend on the technical aspects such as the quality of rifles, ammunition, equipment and working conditions (Training Academy ISSF, 2016). These all are dependent on the financial potential of the athlete itself, and organizations which provides the training conditions to the athletes. The evolution and renewing the standard of equipment make much financial burden not only for individuals but also for national federations and clubs.

Above mentioned characteristics of shooting are related to every competitor who always competes separately of the other competitors. By this view, in shooting sport, it is accentuated the fighting sport with its bounds which means that in the path between the competitor and proficient performance, as well as the best possible result, is not the other competitor, but the margins of the technique and the psychophysical ability of the athlete itself (Vodopivec, V. 1977).

2.2.2. Commitment in shooting sport

For aiming to improve athlete's performance or keeping them in the long training pursuing for excellence, the physical, psychological and technical preparation of shooters to compete should be seen as an equally

important component in the overall preparation. However, these all could be rehearsed and found by the certain methods of training, from the coach's point, improving the shooting performance is complicated because in most cases, the coach is unable to see technical the minor errors that occur during shooting. The coach relies on the shooter's opinion about what happens to him and, on the basis of that, he takes action to improve technique (Training Academy ISSF, 2016).

As mentioned Riesterer.U (1998), the predominant past and present approach to handling a group of shooters alike subjected to the same training programs and taught skill techniques of stereotyped form, without recognizing different needs of each shooter, treating all shooters alike has been shown to stifle the development of some participants while enhancing that of others and ineffective way. What coaches can do to make decisions about the needs of the shooters is to rate those needs using the items on the behavior lists and form motivational need (Riesterer, n.d.). These procedures must be carried by every shooter and coach can detect individual shooters characteristics.

Therefore, the coach and organizations, which are aiming to prepare for the high-performance athletes and increase the participation of both grassroots and professional level, should define each athlete's specific

attitude to his sport participation. These athlete's factors include motivation to the sports, as well as individual commitment to his shooting training. The commitment term commonly used in sport to signify the motivational force behind persistence (Scanlan et al., 1993). The commitment components may define their sport participation purpose and goals to aim further, as well as may play major role for whether they achieve and keep the master level in future (Riesterer, 1993).

Consequently, commitment resources varying across different levels of practice and availability of the studies which is defined athletes' commitment may help to develop further programs which can contribute to optimize the sport participation and retention level of individual athletes.

2.3. Defining athletes' skill level in shooting sport

Shooting sport, as happens in many other sports, practice level among the athletes and participants ranges from basic learning skill to level of emphasis on top competition skills. Whoever emphasizing training and performance in competition may range also to different levels by their skills and performance.

In the Olympic target shooting events, athletes try to hit a stationary target from a distance of 10, 25, 50 meters (ISSF Rules and Regulations, 2017). The diameter of the 10-ring differs to event to event, and the best

shooters are able to hit the 10-ring with every shot in a competition series of 60 shots in Air Rifle, Air pistol, and Sport Pistol events, or 120 shots in 3 position events. In every events, this level of precision requires high and stable technical skill from the athlete.

Era et al., (1996) used in the research categorization as a novice, pre-elite, and elite level shooters. Their study has shown that level in balance, the stability of hold, and postural balance which are important factors to determine the athletes' performance in differ between elite, pre-elite, and novice shooters. There were significant correlations between shooting score and stability of hold on individual (Ball et al. (2003)). Moreover, Mononen et.al (2003) identified four different components in shooting as stability of hold, aiming accuracy, cleanness of triggering, and timing. Therefore, by those variables could be identified the performance in shooting, the scores of the series hit on the target could imply the athlete's level of expertise. (Determinants of elite-level air rifle shooting performance).

The another considerable categorization could be found from the study of Sattlecker et al., (2014). Similar to the performance score category, the participants' category was based on their participation in World or Continental level event, next level events and youths. This category is also could be applied for the shooting athletes where few minority participate in

the top-level events and majority are youth and novices by their experience and performance.

Based on these studies, the skill and expertise level of the shooters could be categorized by their performance score. So, through the careful study of the shooters performance by their score in the competitions, the shooters could be categorized into 3 different groups.

Chapter 3. Methodology

3.1. Research method – Quantitative methodology

The quantitative approach analyses specific, narrow, quantifiable data from participants using statistics and attempts to conduct the inquiry in an unbiased, objective manner (Skinner, Edwards, & Corbett, 2014). In this research, the quantitative method was employed and researcher looked the trends and multiple variables to investigate the sport commitment difference among different level skilled athletes and examined how the athletes differ by their commitments along performance level.

3.2. Study Population and sample

Survey designs seek to describe trends in a large population of individuals and are procedures in which one administers a survey or questionnaire to a sample group to identify trends in attitudes, opinions, behaviors, or characteristics of a large group of people (Creswell, 2007). It involves selecting a sample from individual people from a given population and presenting them with a series of questions in the form of structured questionnaire and answers are transformed into a numerical format using statistical techniques (Skinner et al., 2014).

The surveys were distributed among 203 athletes who were participated in Mongolian National Shooting Sport Championships 2018. A total of 142

surveys were returned, of which 114 were deemed useable (response rate = 56.1%). The National Shooting Championships is the biggest competition which is annually held among the open age categories in rifle and pistol 10 events. The survey was administrated with the approval of Mongolian Shooting Sport Federation and questionnaires were asked from athletes after the completion of events with the help of three volunteers.

Among the biographic information, three skill groups (beginner, intermediate, advanced) were informed through the survey questionnaire asked to self-report their highest score and level of competition to determine their skill level.

3.3. Research instrument

To measure effectively the sport commitment differences among different skilled athletes, valid assessment instrument is vast important. Prior researches (Casper, Jonathan M; Andrew, 2008; W. M. Weiss, 2015) have been studied that sport commitment level comparison between athletes participating in the same sport with differing skill level using Scanlan et al., (1993) 4 variable values, but no other studies used expanded SCQ-2 (Scanlan et al., 2016) to compare the same sport's different skilled athletes sport commitment values.

The expanded SCQ, based on prior commitment research (Scanlan et al., 1993; 2016), items were generated to refine and expand the original SCQ subscales and conducted with multiphase studies. The assessment tool 12 sources comprise enthusiastic and constrained 2 types of commitments and 10 sources supported by 58 items, extracted and validated from the research of Scanlan et al., (2016) among 753 male/female athletes from six sports representing.

The items associated with these measures have demonstrated high reliability ranged from .71 to .92 in past research (Scanlan et al., 2016). Therefore, the SCQ-2 questionnaire with 58 items were employed as a research instrument. After assessing internal reliabilities of the instrument via Cronbach's alpha, the major analysis is carried out in the study. A one-way ANOVA was calculated to compare respondents on sport commitment of self-reported beginner, intermediate, and advanced skill ratings as defined by the Mongolian Shooting Sport Federation's rating and mastery category (MSSF, 2017).

3.4. Survey questionnaire

The survey questionnaire SCQ-2, modified the name "sport" into "shooting sport" and changed slightly according to the cultural differences, composed of 2 sections (See Appendix Survey Questionnaire). The first

section entailed the personal data of the participants while the remaining section were aligned to each of the Research Questions (RQ) as described in Table 1. Responses form evaluations of the survey questions were rated on a 5 point Likert scale (from 1= strongly disagree to 5= strongly agree)

The “Sport commitment Questionnaire-2” which consists of 58 values (Scanlan et al.,2015) was grouped into 12 factor variables; namely Enthusiastic commitment, Constrained commitment, Sport Enjoyment, Valuable Opportunities, Other Priorities, Personal Investments-Loss, Personal Investments-Quantity, Social Constraints, Social Support-Emotional, Social support-Instrumental, Desire to Excel-Mastery achievement, Desire to Excel-Social Achievement.

3.5. Research questions & Hypothesis

The research was guided by following two research questions.

RQ 1: What are the sport commitment differences among elite, intermediate, and beginner skill level athletes?

RQ 2: What are the most predicted commitment variables of advanced athletes and commitment for mastering into elite level?

Table 1. Data analysis overview

Research Question (RQ)	Null Hypothesis	Data Analysis Method
RQ 1: What are the sport commitment differences among elite, intermediate, and beginner skill level athletes?	H1: Diff \neq 0. ($\mu_1 \neq \mu_2 \neq \mu_3$) There is a differences between different skill level of athletes and sport commitment variables while controlling for effect of age. μ_1 (mean of Sport commitment (12 variables) of Beginner skilled athletes) $\neq \mu_2$ (mean of Sport commitment (12 variables) of Intermediate skilled athletes) $\neq \mu_3$ (mean of Sport commitment (12 variables) of Advanced skilled athletes)	A one-way ANOVA
RQ 2: What are the most predicted commitment variables of advanced athletes and commitment for mastering into elite level?	H2: $\mu_3 > \mu_2$, $\mu_3 > \mu_1$ Advanced athletes have higher sport commitment (12 variables) than intermediate and beginner athletes.	Tukey HSD tests & Post hoc tests (Bonferroni)

Chapter 4. Results

The purpose of the study is to compare the sport commitment differences among shooting athletes with different skill level and expertise.

4.1. Descriptive statistics

The data was collected from total of 114 target shooting athletes of Mongolia to form the sample for the analysis and interpretation needed for the study. Under the descriptive analysis, collected data about shooting athletes mainly covered biographic information such as age, gender, shooting sport type, skill level, shooting sport practice years, and training days per week. Furthermore, the data shows an overview of frequencies and percentages of the biographic information collected from athletes. Details of the data are presented in Table 2.

Table 2 shows how the various variables of the research were distributed among athletes sample population. With regards to Skill level 43 (37.7%) Beginner, 44 (38.6%) Intermediate, and 27 (23.7%) Advanced skilled shooters. Participants, responded to the survey were with the Gender rate 61(53.5%) male and 53(46.5%) females. In shooting events, people of all ages can compete against each other on equal terms when athletes who is

Table 2. Descriptive statistics on the sample

		Athletes	Percent	Cumulative Percent
Skill level	Beginner	43	37.7	37.7
	Intermediate	44	38.6	76.3
	Advanced	27	23.7	100.0
	Total	114	100.0	
Gender	Male	61	53.5	53.5
	Female	53	46.5	100.0
	Total	114	100.0	
Age	≤ 18	45	39.5	39.5
	19 ≤ 39	56	49.1	88.6
	40 ≤	13	11.4	100
	Total	114	100	
Year practice	0 ≤ 2 years	43	37.7	37.7
	3 ≤ 6	27	23.7	61.4
	7 ≤ 10	17	14.9	76.3
	11 ≤ 15	12	10.5	86.8
	16 ≤ 20	15	13.2	100.0
	Total	114	100.0	
	Total	114	100	
Training Day per week	≤ 1	22	19.3	19.3
	2 ≤ 3 times	24	21.1	40.4
	4 ≤ 5	46	40.4	80.8
	6 ≤	22	19.2	100.0
	Total	114	100.0	
Shooting Sport Type	Rifle	70	61.4	61.4
	Pistol	44	38.6	100.0
	Total	114	100	

under 18 years of age supervised by a coach or master under the safety requirements and conditions. So most of the respondents of the beginner athlete groups were age of 15 to 18 years old. 18 years or Less 45 (39.5%), 19 to 39 years old 56 (49.1%), and 40 years and more 13 (11.5%). Year of practice of the respondents were 0 to 20 years and 22 (19.%) of them train once a week, 24(21%) of them train 2-3 times a week, 46 (40.3%) of the

responded athletes train 4 to 5 times a week, and 22 (19.3%) train 6 times a week. 70 (61.4%) of all the 114 respondents were rifle shooters and 44 (38,6%) were pistol shooters.

4.2. Results of the Research Questions

RQ 1: What are the sport commitment differences among elite, intermediate, and beginner skill level athletes?

4.2.1. Reliability Statistics

Although previous studies have indicated a high degree of reliability for the 58 items used in this study, the researcher exercised an additional degree of caution by calculating Cronbach's alpha for the constructs in samples. The reliability test was conducted on the "Sport Commitment Questionnaire-2" which consists of 58 values (Scanlan et al.,2015), Cronbach alpha showed the questionnaire reach acceptable reliability, $\alpha=0.819$ by a total of 114 athletes who responded to each of the 58 values. According to the Nunnally and Bernstein (1994), the samples met or exceeded the value of .70 suggested as adequate.

4.2.2. Sport commitment by skill level differences - ANOVA

Means and standard deviations of sport commitment and its determinants on the basis of skill level are presented in Table 5. A one-way ANOVA was conducted to determine a statistically significant difference between different

group of athletes on 12 commitment variables. There was developed ANOVA on the data using SPSS 25.0 statistical software.

Table 3. Between-Subjects Factors

Between-Subjects Factors			
		Value Label	N
Skill_level	.00	Beginner	43
	1.00	Intermediate	44
	2.00	Advanced	27

ANOVA results revealed that, with the exception of 5 variables, significant differences among different skilled athletes in 7 variables.

The analysis revealed significant differences among different skilled athletes in 8 sport commitment variables, while in 4 variables there was no significant differences across groups. Significant differences existed across the groups in Other priorities [$F(2,111)=3.775$, $p=0.026$], Personal Investment Quantity [$F(2,111)=8.767$, $p=0.000$], Personal investment loss [$F(2,111)=4.249$, $p=0.017$], Social support informational [$F(2,111)=4.465$, $p=0.014$], Desire to excel mastery [$F(2,111)=6.490$, $p=0.002$], Desire to excel social [$F(2,110)=7.653$, $p=0.001$], Enthusiastic commitment [$F(2,110)=10.450$, $p=0.000$]. The analysis revealed significant differences in 7 (out of 12) sport commitment variables between skill levels.

Table 4. Results of the ANOVA (Independent variable: Athletes skill level)

		Sum of Squares	df	Mean Square	F	Sig.
Desire to excel Social	Between Groups	13.850	2	6.925	7.653	.001
	Within Groups	100.439	111	.905		
	Total	114.289	113			
Personal Investment Quantity	Between Groups	11.594	2	5.797	8.767	.000
	Within Groups	73.398	111	.661		
	Total	84.991	113			
Enthusiastic Commitment	Between Groups	16.741	2	8.371	10.450	.000
	Within Groups	88.917	111	.801		
	Total	105.658	113			
Social support Informational	Between Groups	17.311	2	8.656	4.465	.014
	Within Groups	215.180	111	1.939		
	Total	232.491	113			
Desire to excel mastery	Between Groups	9.207	2	4.604	6.490	.002
	Within Groups	78.731	111	.709		
	Total	87.939	113			
Other Priorities	Between Groups	11.970	2	5.985	3.775	.026
	Within Groups	175.968	111	1.585		
	Total	187.939	113			
Personal Investment Loss	Between Groups	7.753	2	3.877	4.249	.017
	Within Groups	101.264	111	.912		
	Total	109.018	113			

While majority of the commitment variable had significant differences, the analysis results also exposed no significant differences for Sport enjoyment [$F(2,111)=1,979$, $p=0.143$], Valuable opportunities [$F(2,111)=2.249$, $p=0.110$], Social constraints [$F(2,111)=1.074$, $p=0.345$], Social support emotional [$F(2,111)=1.199$, $p=0.305$], and Constrained commitment [$F(2,111)=2.248$, $p=0.110$] among the three groups which reported over significant value ($p<0.05$) of the Sport commitment.

To define specific group differences among the three level of the independent variable, the estimated marginal means were calculated and 95% confidence intervals were examined. The levels of the independent variable were calculated significantly different from each other if their respective 95% confidence intervals did not overlap.

The overall commitment showed that, however there is a significance differences between the groups, 5 variables revealed no significant differences among the groups. Therefore reject the null hypothesis as shown in the Table 4.

Table 4. Implication of Hypothesis for RQ1

Research Question (RQ)	Null Hypothesis rejected at a significant point value greater than ($p < 0.05$)
RQ 1: What are the sport commitment differences among elite, intermediate, and beginner skill level athletes?	H1: Diff $\neq 0$. ($\mu_1 \neq \mu_2 \neq \mu_3$) There is a differences between different skill level of athletes and sport commitment variables while controlling for effect of age. μ_1 (mean of Sport commitment (12 variables) of Beginner skilled athletes) $\neq \mu_2$ (mean of Sport commitment (12 variables) of Intermediate skilled athletes) $\neq \mu_3$ (mean Sport commitment (12 variables) of Advanced skilled athletes)

4.3.2. Results of the Research Question 2

RQ 2: What are the most predicted commitment variables of advanced athletes or mastering into elite level?

Since one-way between subjects ANOVA is significant for 7 commitment variables, post hoc tests were carried out to see how the groups differ by significant variables. Post hoc comparisons using the Tukey HSD test indicated that in respect to other priorities, the mean score for the intermediate athletes ($M=2.50$, $SD=1.35$) reported higher than Advanced athletes ($M=1.92$, $SD=1.17$) and beginner group ($M=1.79$, $SD=1.20$). For Personal investment-quantity, advanced group ($M=4.70$, $SD=0.66$) reported slightly higher than intermediate ($M=4.47$, $SD=0.82$) and significantly higher than beginner athletes ($M=3.93$, $SD=0.88$). For the variable of Personal investment-loss, beginner athletes ($M=4.53$, $SD=0.59$) reported higher than intermediate ($M=4.29$, $SD=1.00$) and advanced ($M=3.85$, $SD=1.29$) counterparts. For social support variables, social support informational was scored higher by the beginner group ($M=3.67$, $SD=1.20$) than intermediate ($M=2.84$, $SD=1.42$) and advanced ($M=3.17$, $SD=1.43$).

Table 5. Tukey HSD test (Descriptives)

						95% Confidence Interval for Mean	
		N	Mean	SD	Std. Error	Lower Bound	Upper Bound
Desire to excel Social	Beginner	43	3.9070	1.12998	.17232	3.5592	4.2547
	Intermediate	44	3.8636	.95457	.14391	3.5734	4.1539
	Advanced	27	4.7037	.54171	.10425	4.4894	4.9180
	Total	114	4.0789	1.00569	.09419	3.8923	4.2656
Personal Investment Quantity	Beginner	43	3.9302	.88359	.13475	3.6583	4.2022
	Intermediate	44	4.4773	.82091	.12376	4.2277	4.7269
	Advanced	27	4.7037	.66880	.12871	4.4391	4.9683
	Total	114	4.3246	.86726	.08123	4.1636	4.4855
Enthusiastic Commitment	Beginner	43	4.7442	.58117	.08863	4.5653	4.9230
	Intermediate	44	4.3182	.90920	.13707	4.0418	4.5946
	Advanced	27	3.7407	1.22765	.23626	3.2551	4.2264
	Total	114	4.3421	.96697	.09056	4.1627	4.5215
Social support Informational	Beginner	43	3.6744	1.20950	.18445	3.3022	4.0466
	Intermediate	44	2.8409	1.42964	.21553	2.4063	3.2756
	Advanced	27	2.9259	1.59147	.30628	2.2964	3.5555
	Total	114	3.1754	1.43438	.13434	2.9093	3.4416
Desire to excel mastery	Beginner	43	4.5349	.59156	.09021	4.3528	4.7169
	Intermediate	44	4.6364	.65026	.09803	4.4387	4.8341
	Advanced	27	3.9259	1.32798	.25557	3.4006	4.4513
	Total	114	4.4298	.88217	.08262	4.2661	4.5935
Other Priorities	Beginner	43	1.7907	1.20630	.18396	1.4195	2.1619
	Intermediate	44	2.5000	1.35544	.20434	2.0879	2.9121
	Advanced	27	1.9259	1.17427	.22599	1.4614	2.3905
	Total	114	2.0965	1.28964	.12079	1.8572	2.3358
Personal Investment Loss	Beginner	43	4.5349	.59156	.09021	4.3528	4.7169
	Intermediate	44	4.2955	1.00185	.15103	3.9909	4.6000
	Advanced	27	3.8519	1.29210	.24866	3.3407	4.3630
	Total	114	4.2807	.98222	.09199	4.0984	4.4630

Table 6. Post hoc tests for I four variables (Bonferroni)

Multiple Comparisons

	(I) Skill_level	(J) Skill_level	Mean Diffe- rence (I- J)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
						Lower Bound	Upper Bound
Other priorities	Beginner	Intermediate	-.70930*	.26999	.029	-1.3656	-.0530
		Advanced	-.13523	.30916	1.000	-.8867	.6163
	Intermediate	Beginner	.70930*	.26999	.029	.0530	1.3656
		Advanced	.57407	.30781	.194	-.1741	1.3223
	Advanced	Beginner	.13523	.30916	1.000	-.6163	.8867
		Intermediate	-.57407	.30781	.194	-1.3223	.1741
Personal Invest- ment Quantity	Beginner	Intermediate	-.54704*	.17437	.007	-.9709	-.1232
		Advanced	-.77347*	.19967	.001	-1.2588	-.2881
	Intermediate	Beginner	.54704*	.17437	.007	.1232	.9709
		Advanced	-.22643	.19879	.771	-.7097	.2568
	Advanced	Beginner	.77347*	.19967	.001	.2881	1.2588
		Intermediate	.22643	.19879	.771	-.2568	.7097
Personal Invest- ment Loss	Beginner	Intermediate	.23943	.20482	.735	-.2584	.7373
		Advanced	.68303*	.23453	.013	.1129	1.2531
	Intermediate	Beginner	-.23943	.20482	.735	-.7373	.2584
		Advanced	.44360	.23350	.180	-.1240	1.0112
	Advanced	Beginner	-.68303*	.23453	.013	-1.2531	-.1129
		Intermediate	-.44360	.23350	.180	-1.0112	.1240
Social support informa- tional	Beginner	Intermediate	.83351*	.29856	.019	.1078	1.5593
		Advanced	.74849	.34188	.092	-.0825	1.5795
	Intermediate	Beginner	-.83351*	.29856	.019	-1.5593	-.1078
		Advanced	-.08502	.34038	1.000	-.9124	.7424
	Advanced	Beginner	-.74849	.34188	.092	-1.5795	.0825
		Intermediate	.08502	.34038	1.000	-.7424	.9124

*. The mean difference is significant at the .05 level.

For desire to excel social variable, advanced players (M=4.70, SD=0.54) scored higher than intermediate (M=3.86, SD=0.95) and beginner (M=3.90, SD=1.12). In respect to Desire to excel mastery, intermediate group athletes (M=4.63, SD=0.65) reported higher than beginner (M=4.53,

SD=0.59) and advanced (M=3.92, SD=1.32) groups. For the commitment variables, enthusiastic commitment was reported higher by the beginner athletes (M=4.74, SD=0.58) than intermediate (M=4.31, SD=0.90) and advanced levels (M=3.74, SD=1.22).

Table 7. Post hoc tests for three variables (Bonferroni)

Multiple Comparisons							
	(I) Skill_level	(J) Skill_level	Mean Difference (I-J)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
						Lower Bound	Upper Bound
Desire to excel social	Beginner	Intermediate	.04334	.20398	1.000	-.4525	.5392
		Advanced	-.79673*	.23357	.003	-1.3645	-.2290
	Intermediate	Beginner	-.04334	.20398	1.000	-.5392	.4525
		Advanced	-.84007*	.23255	.001	-1.4053	-.2748
	Advanced	Beginner	.79673*	.23357	.003	.2290	1.3645
		Intermediate	.84007*	.23255	.001	.2748	1.4053
Desire to Excel Mastery	Beginner	Intermediate	-.10148	.18060	1.000	-.5405	.3375
		Advanced	.60896*	.20680	.012	.1063	1.1116
	Intermediate	Beginner	.10148	.18060	1.000	-.3375	.5405
		Advanced	.71044*	.20589	.002	.2100	1.2109
	Advanced	Beginner	-.60896*	.20680	.012	-1.1116	-.1063
		Intermediate	-.71044*	.20589	.002	-1.2109	-.2100
Enthusiastic commitment	Beginner	Intermediate	.42600	.19192	.085	-.0405	.8925
		Advanced	1.00345*	.21977	.000	.4692	1.5377
	Intermediate	Beginner	-.42600	.19192	.085	-.8925	.0405
		Advanced	.57744*	.21880	.029	.0456	1.1093
	Advanced	Beginner	-1.00345*	.21977	.000	-1.5377	-.4692
		Intermediate	-.57744*	.21880	.029	-1.1093	-.0456

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

The overall scores shows that advanced players were not always scored higher in the significant variable. This therefore reject the null hypothesis. See Table 7.

Table 8. Implication of Hypothesis for RQ2:

Research Question (RQ)	Null Hypothesis rejected by the result that advanced group was not higher at all variables than beginner and intermediate group athletes.
RQ 2: What are the most predicted commitment variables for continuation of participation of athletes and mastering into elite level?	H2: $\mu_3 > \mu_2$, $\mu_3 > \mu_1$ Advanced group athletes have higher sport commitment (12 variables) than intermediate and beginner athletes.

Chapter 5. Discussion

Although there must be significant differences among athletes' commitment, for example, according to their age, sport type, experience, and time availability, the aim of the study were to measure the sport commitment differences among the athletes with different skill level in shooting sport. The constructs of Sport Commitment Model (Sport Commitment Model by Scanlan, Carpenter et al., 1993, 2016, Casper, Jonathan M; Andrew, 2008) which was used in the study as a theoretical model have not examined commitment differences in shooting sport's athletes yet. Therefore, the researcher has chosen Mongolian beginner, intermediate, and elite level athletes of target shooting sport to validate the research with variables of the SCM. While previous researches, made by both early developed and updated SCM contributed to this research tremendously by comparison of gender, skill level, and culture, age invariants in accordance with the model.

5.1. The variables with no significant correlation between skill level and sport commitment

The result didn't support the findings of Casper and Andrew (2008) and Chu (2012) that there were significant differences according to the skill level of athletes and level of participation in relation to enjoyment, valuable opportunities, social support, and social constraints variables. However

enjoyment and involvement opportunities would increase over time in commitment and conversely if these values decrease it corresponds to a decrease in commitment (Carpenter & Scanlan, 1998), the study didn't find relevant significance for these variables among studied populations. Even though Scanlan (1993) and Williams (2013) suggested that Sport enjoyment is the most predicted sport commitment variable for beginner level athletes, the study examined no significant differences in beginner athletes from intermediate and advanced groups.

Furthermore, the results shows all the athletes who responded are equally varied or perceived the social support emotional, social constraints, and valuable opportunities. The athletes also evaluated valuable opportunities as higher priorities. Instead of no significant differences for this variable, subscales were asked that whether there are future events, travel, learning experience, and competition in the shooting sport that they miss if they no longer played. As both three groups scored higher for the variable, all athletes showed that they are more attached to the new learning process and competition experiences, and athletes who started competing might have the chance to travel while learning new things and experiencing new events.

Regarding to the perception of no differences in Athletes' report for Social Constraints shows that athletes feel expectations or norms that create

perceptions of obligation to remain in a sport from their beginning stage regardless of their skill level. As Prus & Irini (1980) and Stevenson (2002) concluded, in many cases, an athlete's initial interest occurs through "sponsored recruitment", whereby significant others support and encourage the athlete's involvement (Kay, 2000). Stevenson (1990) found that although athletes' introductions to their sport are indeed "sponsored" by significant others, that relationships with likeminded others were identified as a salient factor in parents' decisions to enroll their children in particular youth sport programs Green (1997). On the other hand, most of the athletes in the study were aged between 15 to 39 years old, thus it reveals that they are more dependent from their parents, family, and closer people.

While these 5 constructs of the sport commitment equally existed through the athlete groups, other 7 variables are significantly differed across the skill level. The Discussion first looks at the differences between the three group of athletes' commitment characteristics.

5.2. Overall commitment among study population

Despite no significant differences in 5 variables, the study found that the athletes surveyed were quite committed and enjoyed to their shooting sport experience. All the competitors suggest that desire to excel mastery and personal investments are key factors in retaining individuals in shooting sport.

In particular, those who showed higher for overall commitment to shooting sport reported less social constraints and constrained commitment. This result indicates that the most people who join shooting sport are quite committed to and shooting sport experience could be prolonged as long as possible among these participants.

5.3. Beginner level athletes' sport commitment

Understanding the commitment of beginner level athletes explores the issues and the necessary supports which are related to athletes' recruitment and retention stage. The results of the study provide the points for how athletes become involved in a given sport, how they feel about their participation, and what factors can predict to increase their commitment. Therefore commitment awareness helps to level up from the novice level and keep them with tend to pursue sports further.

Firstly, as study result shows that the beginner shooting athletes reported significantly higher in personal investment loss, social support informational, and enthusiastic commitment than other two groups, the result suggests that these variables are highly contributed to the commitment of beginners. For instance, the result tells the prediction for beginner athletes commitment enhancing factor as their perception about personal investment loss. Supposedly it sustains the conclusion which athletes feel that they put

more mental and physical effort, time, and they maintain personal discipline in the sport (Scanlan et al., 2016) and those efforts affects beginner athletes to increase the commitment. However it doesn't support the expectations that enjoyment is a common reason for starting to practice by sports or novice athletes' involvement in sport (M. R. Weiss et al., 2002) and enjoyment and commitment were significantly correlated (Carpenter & Scanlan, 1998) among the athletes who remained in a sport for a long time (Schmidt and Stein (1991)) despite skill or other differences.

Secondly, findings from beginner athlete group shows that they reported significantly higher on the enthusiastic commitment which was showed their willingness to continue the sport in further. To increase the retention level, athletes' willingness to participate as long as they can is important and the study group of athletes express enough motivation.

Finally, the beginner athletes' higher evaluation on social support informational variable indicates that they perceive enough instruction on their sport. On the other hand, the beginner athletes might feel more quick improvements through the advice and strategies taught by their supervisors, trustworthy people or coach. The result also shows that the beginner athletes rate the degree of support and encouragement received from other significant people including coaches, parents, teammates, and close friends (M. R. Weiss

& Ferrer, 2002) are higher. Therefore, in the starting process of participation needs well support from others and it contributes significantly for this group of athletes.

5.4. Intermediate level athletes' sport commitment

Participants athletes in the study were scored particularly higher for other priorities and desire to excel mastery variables. This raises the possibility that, as the level of difficulty increases, enjoyment decreases and desire to excel become the driving forces for retention in shooting sport. As Scanlan and others (2003) concluded, higher skilled athletes often attribute their successes to their commitment to sport and the training for sport (Scanlan et al., 2003). It shows that this group athletes' willingness to achieve better result and potential to maintain further participation in the shooting sport which supports Stevenson (1990)'s two factors that explained athletes' decisions to specialize in a given sport: potential for success and the people associated with the sport.

5.5. Advanced/elite level athletes' sport commitment

Advanced athletes were higher on the variables as personal investment quantity and desire to excel social. Clearly, individuals who have more years of sport experience and who participated in high level of competition frequently had more commitment and personal investment than

individuals whose skill level is beginner and intermediate. The result supports the findings of Carpenter & Scanlan (1998) that the individuals who stayed with those left, stayers' satisfaction rose, their alternatives declined, their investments increased, and there was an increase in their commitment. Particularly in advanced level, some participants might be motivated predominantly by social outcomes from participation (e.g., skill development, physical activity, rewards) (B. C. Green, 2005). As suggested studies by Green and Oakley (2001), elite athletes might value both social and task elements highly. Therefore, the programs, combining task-oriented training with time and opportunities to socialize, can attract and cater to multiple motives for participation. In order to retain athletes long enough, special support through implementation of programs for those athletes who apprehend and value other benefits, is needed. Consequently, advanced athletes will be more committed by multiplying the benefits to be obtained, and they will be less likely to be enticed away from the sport into other activities or disinvolvement.

5.6. Implications of Findings

The findings from this study have both theoretical and practical implications.

5.6.1. Theoretical implication

First, the study contributes to the validity of the Sport Commitment Model (SCM) Expansion constructs by examining different skilled athletes who play same sport. The study also put forward the literature in relation to the newly developed Sport commitment model with shooting sport participants, however it suggests that further examination is needed to certify the relationships between skill level and sport commitment variables.

5.6.2. Practical implications

Practical implications of the study are proposed to enhance the understanding about characteristics which affect to increasing commitments to the certain sport and level up sports participation and retention rate, therefore to help strengthen the sport performance level. It could be, also, useful by sport marketing perspective as examined by Casper and Andrew (2008) that sport participation dictates the financial viability of the firm and those settings (clubs, private sports clubs, sport governing bodies, etc.) are heavily dependent highly committed sport participants. Similarly, these segments including novice, intermediate, and elite level athletes (study population) influence for the sport industry and sport development of the country by their direct and indirect participation.

5.6.3. Enhancing sports participation and recruitment level

For the purpose to recognize the challenges of recruiting new athletes, managers and coaches' awareness of the athletes' attributes affect the contribution of sports participation enhancement. Sport organization and sport governing bodies' concerns are to enhance the rate of sports participation (Palm, 1991; Ståhl et al., 2002); the other is to enhance the competitive standards that sports participants attain (M. Green & Oakley, 2001). The concern to enhance sports participation has been supported by three key legitimations: health promotion (Seefeldt, 1986), (b) economic benefits of increased fitness, and enlargement of the nation's reserve of athletes who can be developed into international competitors (*Green and Oakley, 2001*). As shooting sport is one of the elite sport in the country, the main concern of the shooting sport governing body is to enhance the sport participation and the competitive standard of national teams driven by efforts to elevate national prestige and to strengthen sport itself. This study has progressed well-understood demographics and analysis of the participants from previously unexplored psychographic perspective.

The study and previous researches suggested that sports programs are needed focus on social interaction, fitness, skill development, and various enjoyment, particularly when those programs are targeted to recruit the

adolescent or children and maintain their involvement. To increase the enjoyment and enthusiastic commitment, the beginner level athletes' study result suggests the need for a range of programs, and more importantly, a range of implementations. As well as, in the shooting sport which has every age participants, it is important to cater appropriately to different market segments that well understood in marketing (Haley, 1968). Since the implications of benefit for sports program planning and implementation have been insufficiently examined, one source of program recruitment and retention problems might be the failure to offer a sufficient assortment of program variations to cater to a diverse and changing array of participant motivations and commitment (Chalip & Green, 1998).

5.6.4. Improving retention level

Retention is defined by the statement by Green (2005) that once the athlete has been introduced or recruited to the sport, the processes by which athletes are retained or lost begin (B. C. Green, 2005). Furthermore, at least four concepts are required to analyze the retention processes by which people become involved in sport: recruitment, motivation, socialization, and commitment. Therefore, the study could be helpful as it looked at intermediate athletes' commitment affecting factors. For instance, as this group informed that they may have activities or responsibilities that cannot

easily be ignored, for example, career or family. It indicates the importance of considering their other priorities and implementing flexible management in the sport activity.

Finally, the results suggest that the implication to promote each athlete's potential for success is a more effective way to increase retention level since the result that the desire to excel in intermediate athletes was the main predictor of sport commitment. Athletes' perception of success, however, is mediated by expectancies and goals (Burton & Martens, 1986), they can be trained to set realistic goals and to plan and evaluate their development accordingly (Chalip, 1980). Thus, goal planning is something that needs to be trained from the outset and programs need to build this component into their athlete development planning.

5.6.5. Motivating high-performance level

Through the development of optimal sports program and enhancing recruitment and retention level, pursuing high performance is the main priority of the sport governing bodies, sports managers, and coaches. Study shows that elite athlete group emphasized personal investment and desire to excel social as more commitment enhancement. As suggested by Tara K. Scanlan et al., (2003), elite athletes have to demonstrate an intense and enduring commitment to become and remain at the high-performance level.

By reporting personal investment as positive predictors for the commitment, this group represents of some individuals who have worked very hard to get there, and having gotten there, to be worthy of being there, they've got to continue to strive and it makes them more committed. Training, a combination of time and effort, and financial resources are invested greatly by athletes. According to the study of elite athletes by Tara K. Scanlan et al., (2003), all participants' 77% identified effort, 62% indicated training, and 54% cited money as personal investment. As shooting, itself, requires both physical and financial ability from the participants, identified resources considered highly in the high performance level.

Shooting, even it is individual sport, family and community support groups, team social functions, and well mentoring are need to be structured into program design. As suggested by Stevenson's (2008) that mere provision of opportunities for participation or skill acquisition is inadequate and programs must incorporate designs that maximize the social support and expressions of team spirit to be obtained.

5.7. Limitations

Several limitations of this study should be noted. The shooting athletes were participated in the National Championships in 2018 resulting in a relatively homogenous sample which may reduce the ability to generalize

the results in broad context replicating the current study. With a sample of more athletes over a wider variety of sports types and skill levels would help reduce potential sampling error. Consequently, a full test and validation of the model need to be addressed in future researches for more wider respondents and athletes.

Secondly, to help further with sport commitment constructs to define the attributes of the athletes, an additional interview with coaches and instructors would provide insight to propose an optimized program and will positively impact to understand the sports commitment more. However, the constructs significantly predict commitment in all age samples (Carpenter, 2003), as young athletes have found the questionnaire difficult to comprehend, there was some additional explanation made them clarify. Further studies may need to validate by age categories or double repeated measurements with time intervals checking whether youths fully comprehend the questions.

Bibliography

- Alexandris, K., Zahariadis, P., Tsorbatzoudis, C., & Grouios, G. (2002). Testing the Sport Commitment Model in the Context of Exercise and Fitness P...: EBSCOhost. *Journal of Sport Behavior* , Vol.25(3), p217 14p.
- Becker, H. S. (1960). Notes on the Concept of Commitment. *American Journal of Sociology*, 66(1), 32–40. <https://doi.org/10.1086/222820>
- Brickman, P. (1987). *Commitment, conflict, and caring*. Englewood Cliffs, NJ: Prentice Hall.
- Carpenter, P. J., & Scanlan, T. K. (1998). Changes Over Time in the Determinants of Sport Commitment. *Pediatric Exercise Science*, 10(4), 356–365. <https://doi.org/10.1123/pes.10.4.356>
- Carpenter, P. J., Scanlan, T. K., Simons, J. P., & Lobel, M. (1993). A Test of the Sport Commitment Model Using Structural Equation Modeling. *Journal of Sport and Exercise Psychology*, 15(2), 119–133. <https://doi.org/10.1123/jsep.15.2.119>
- Casper, Jonathan M; Andrew, D. P. S. (2008). Sport Commitment Differences Among Tennis Players on the Basis of Participation Outlet and Skill Level - ProQuest. *Journal of Sport Behavior*, 31(3), 201-.
- Casper, J. M., & Andrew, D. P. S. (2008). Sport Commitment Differences Among Tennis Players on the Basis of Participation Outlet and Skill Level - ProQuest. *Journal of Sport Behavior*, 3(3), 201-.
- Centre, T. O. S. (2017). SHOOTING History of Shooting at the Olympic Games. OSC REFERENCE COLLECTION. Retrieved from www.olympic.org/studies

- Chritopher L.Stevenson. (2008). The Athletic Career: Some Contingencies of Sport Specialization - ProQuest. Journal of Sport Behaviour. Retrieved from <https://search.proquest.com/docview/1311949922?pq-origsite=gscholar>
- Chu, A. Y., & Wang, C.-H. (2012). Differences in Level of Sport Commitment Among College Dance Sport Competitors. Social Behavior and Personality: An International Journal, 40(5), 755–766. <https://doi.org/10.2224/sbp.2012.40.5.755>
- Creswell, J. W. (n.d.). Educational research : planning, conducting, and evaluating quantitative and qualitative research. Retrieved from https://books.google.co.kr/books?vid=ISBN9780132073080&redir_esc=y
- DSB. (n.d.). The German Shooting Sport and Archery Federation-a powerful community since 1861. Retrieved from https://www.dsb.de/media/PDF/Publikationen/DSB_BroschureBriefm_englisch.pdf
- Foundation, N. S. S. (2014). Target Shooting Participants Responsive Management Conducted for the National Shooting Sports Foundation ® by Responsive Management. Retrieved from www.responsivemanagement.com
- Green, B. C. (1997). Action Research in Youth Soccer: Assessing the Acceptability of an Alternative Program. Journal of Sport Management, 11(1), 29–44. <https://doi.org/10.1123/jsm.11.1.29>
- Green, B. C. (2005). Sport Development Theory Building Sport Programs to Optimize Athlete Recruitment, Retention, and Transition: Toward a Normative Theory of Sport Development. Journal of Sport Management (Vol. 19).

- Green, M., & Oakley, B. (2001). Elite sport development systems and playing to win: uniformity and diversity in international approaches. *Leisure Studies*, 20(4), 247–267. <https://doi.org/10.1080/02614360110103598>
- ISSF. (2016). The ISSF History. Retrieved June 23, 2018, from <https://www.issf-sports.org/theissf/history.ashx>
- Johnson, M. . (1982). Social and cognitive features of the dissolution of commitment to relationships. *Personal Relationships*., Vol. 4. Di, 51–73.
- Kay, T. (2000). Sporting Excellence: A Family Affair? *European Physical Education Review*, 6(2), 151–169. <https://doi.org/10.1177/1356336X000062004>
- Kelley, H. H., Berscheid, E., Christensen, A., Harvey, J. H., Huston, T. L., Levinger, G., ... Peplau, L. A. (1983). Love and commitment. *Close Relationships*, 265–314.
- Kindler, U., & Riesterer, U. (2004). Coaching Gymnastik -eine Notweniigkeit im Training des SportsMeBens. *UIT Journal*. Retrieved from <https://www.issf-sports.org/getfile.aspx?mod=docf&pane=1&inst=166&iist=48&file=198704KindlerRiestererGymnastics.pdf>
- NATIONAL STATISTICS OFFICE OF MONGOLIA, G. A. O. P. E. A. S. O. M. (2017). Sports, physical activity, and sports facility Report 2017. Ulaanbaatar. Retrieved from http://www.1212.mn/BookLibraryDownload.ashx?url=SPORT_REPORT_LAST.pdf&ln=Mn
- NSO of Mongolia. (2018). Mongolian National Statistics 2018. Retrieved August 2, 2018, from <https://www.nso.mn/>
- Owen Lattimore Chauncy D. Harris Alan J.K. Sanders. (2018). Mongolia | Culture, History, & People | Britannica.com. Retrieved September

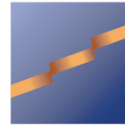
- 29, 2018, from <https://www.britannica.com/place/Mongolia>
- Riesterer, U. (n.d.). Coaching Coaching Coaching -Part 2 Psychological Factors in Shooting Sports Individualising the Needs of Shooters. Retrieved from <https://www.issf-sports.org/getfile.aspx?mod=docf&pane=1&inst=166&iist=48&file=198901RiestererPsychologicalfactorsinsportshootingPart2.pdf>
- Robert, M. (2010, January). Developing Life Skills Through Shooting, 1. Retrieved from https://www.usashooting.org/library/Instructional/General/jan_feb_2010_champions_in_sport_and_life.pdf
- Rusbult, C. E. (1983). A longitudinal test of the investment model: The development (and deterioration) of satisfaction and commitment in heterosexual involvements. *Journal of Personality and Social Psychology*, 45(1), 101–117.
- Sattlecker, G., Buchecker, M., Müller, E., & Lindinger, S. J. (2014). Postural Balance and Rifle Stability During Standing Shooting on an Indoor Gun Range Without Physical Stress in Different Groups of Biathletes. *International Journal of Sports Science & Coaching*, Feb2014, V(Issue 1), p171 14p.
- Scanlan, T. K., Carpenter, P. J., Simons, J. P., Schmidt, G. W., & Keeler, B. (1993). The Sport Commitment Model: Measurement Development for the Youth-Sport Domain. *Journal of Sport and Exercise Psychology*, 15(1), 16–38. <https://doi.org/10.1123/jsep.15.1.16>
- Scanlan, T. K., Chow, G. M., Sousa, C., Scanlan, L. A., & Knifsend, C. A. (2016). The development of the Sport Commitment Questionnaire-2 (English version). *Psychology of Sport and Exercise*, 22, 233–246. <https://doi.org/10.1016/J.PSYCHSPORT.2015.08.002>

- Scanlan, T. K., Russell, D. G., Beals, K. P., & Scanlan, L. A. (2003). Project on Elite Athlete Commitment (PEAK): II. A Direct Test and Expansion of the Sport Commitment Model with Elite Amateur Sportsmen. *Journal of Sport and Exercise Psychology*, 25(3), 377–401.
- Scanlan, T. K., Russell, D. G., Magyar, T. M., & Scanlan, L. A. (2009). Project on Elite Athlete Commitment (PEAK): III. An Examination of the External Validity across Gender, and the Expansion and Clarification of the Sport Commitment Model. *Journal of Sport and Exercise Psychology*, 31(6), 685–705.
- Seefeldt, V., & National Association for Sport and Physical Education. (1986). Physical activity & well-being. American Alliance for Health, Physical Education, Recreation, and Dance. Retrieved from <https://eric.ed.gov/?id=ED289874>
- Shooting, U. (1996). The History of Shooting Sport. Retrieved from <https://www.washingtonpost.com/wp-srv/sports/olympics/longterm/shooting/shthist.htm?noredirect=on>
- Singh, M. (1993). The role of Sports Psychology in the Shooting Sport. *UIT Journal*, 2/93.
- Skinner, J., Edwards, A., & Corbett, B. (2014). *Research Methods for Sport Management*. Routledge. <https://doi.org/10.4324/9780203856123>
- Tara K. Scanlan, 1, David G. Russell, 2, T. Michelle Magyar, 3, & and Larry A. Scanlan1. (n.d.). Project on Elite Athlete Commitment (PEAK): III. An Examination of the Exte...: EBSCOhost. Retrieved October 09, 2018, from <http://web.b.ebscohost.com.libproxy.snu.ac.kr/ehost/pdfviewer/pdfviewer?vid=1&sid=066f3112-8f15-46e6-8eed-ed9dd5a8e2dd%40pdc-v-sessmgr03>

- Thorndike, R. M. (1995). Book Review : Psychometric Theory (3rd ed.) by Jum Nunnally and Ira Bernstein New York: McGraw-Hill, 1994, xxiv + 752 pp. *Applied Psychological Measurement*, 19(3), 303–305. <https://doi.org/10.1177/014662169501900308>
- Training Academy ISSF. (2016). The Fundamentals of Olympic Rifle Shooting. Retrieved June 23, 2018, from https://www.issf-sports.org/theissf/academy/e_learning.ashx
- Weiss, M. R., & Ferrer, C. E. (2002). Motivational orientations and sport behavior. *Human Kinetics*. Retrieved from <https://experts.umn.edu/en/publications/motivational-orientations-and-sport-behavior>
- Weiss, W. M. (2015). Competitive-level differences on sport commitment among high school- and collegiate-level athletes. *International Journal of Sport and Exercise Psychology*, 13(3), 286–303. <https://doi.org/10.1080/1612197X.2014.958517>
- Williams, L. (2013). Commitment to sport and exercise: re-examining the literature for a practical and parsimonious model. *Journal of Preventive Medicine and Public Health = Yebang Uihakhoe Chi*, 46 Suppl 1(Suppl 1), S35-42. <https://doi.org/10.3961/jpmph.2013.46.S.S35>
- World population review (2017), Mongolia population review. (n.d.). <http://worldpopulationreview.com/>



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Survey Questionnaire

Sport commitment differences among shooting athletes on the basis of skill level: Study of Mongolian shooting athletes

Dear Shooter,

The present survey is aiming to find out how you feel about shooting sport and commitment for involvement in shooting. The questionnaire is designed in fulfillment of my master's dissertation at the Seoul National University. Your answers and assistance will be very helpful. No names or confidential information shall be disclosed. No one will have access to your personal answers except the researcher.

We appreciate your time for filling out the following questionnaire regarding your experience and thoughts.

Instruction: Please choose the response that best reflects the level of your agreement with the following statements, where 5 is strongly agree and 1 is strongly disagree. There is no right or wrong answer.

Sincerely Yours,

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Sport commitment differences among shooting athletes on the basis of skill level: Study of Mongolian shooting athletes

Part I: Personal profile and General information

(Instruction: Please fill in the gap or circle your appropriate answer)

- **Date of Birth:** Year Month Day
- **Gender:** a. Male ☐ b. Female ☐
- **Marital status:** a. Married ☐ b. Unmarried ☐
- **Educational background:** a. High school b. Bachelor c. Master d. PhD
- **Employment status:**
 - a. High/middle school student b. College/University student
 - c. Full time employed d. Contract basis athlete e. Unemployed
- **When did you start practicing by Shooting sport?** A year:
- **How many times do you do shooting training per week?**
 - a. 0 b. 1 c. 2 d. 3 e. 4 f. 5 g. 6
- **When was your last training?** A Year: Month:
- **Which events do you participate? (shooting sport type)**
 - a. 10m Air Rifle d. 10m Air Pistol b. 50m Prone Position
 - e. 50m Pistol c. 50m Three Position 3x40 f. 25m Sport Pistol
- **What is your best score in the National championships?**
 - a. 10m Air Rifle d. 10m Air Pistol
 - b. 50m Prone Position e. 50m Pistol
 - c. 50m Three Position 3x40 f. 25m Sport Pistol
- **Have you ever been participated in International competition?**
 - a. Yes b. No (If “Yes”, answer for #12, If “No”, go for question #15)
- **Please choose the answers from the following International competitions which you ever competed.**
 - a. International match among 2 to 3 countries b. Junior AC Junior WC
 - c. University World Championships, Universiade d. Asian Championships
 - e. ISSF World Cup f. ISSF World Championships g. Olympic Games
- **When did you compete in “International competition” last time?**
 - Year: Month:
- **When did you compete in “National competition” last time?**
 - Year: Month:
- **Your training club is located in:**
 - a. Ulaanbaatar b. Other provinces c. Other

Sport commitment differences among shooting athletes on the basis of skill level: Study of Mongolian shooting athletes

Part II: Questionnaire

Instruction: Please choose the response that best reflects the level of your agreement with the following statements, where 5 is strongly agree and 1 is strongly disagree. There is no right or wrong answer. Kindly take time to respond the following questions.

Appendix 1: Survey Questionnaire sample

	Item	Strongly disagree	Some-what disagree	Neither agree nor disagree	Some-what agree	Strongly agree
1.	Playing this sport is fun.	1	2	3	4	5
2.	I have spent a lot of time in shooting sport.	1	2	3	4	5
3.	Other things in my life make difficult to practice by the shooting sport.	1	2	3	4	5
4.	I try to dominate in shooting sport.	1	2	3	4	5
5.	In shooting, I am constantly trying to improve my skills.	1	2	3	4	5
6.	The mental effort I have put into the shooting sport makes it difficult to stop playing.	1	2	3	4	5
7.	Staying in the shooting sport is more of a necessity than a desire.	1	2	3	4	5
8.	There are future events in the shooting sport that I would really miss experiencing if I no longer played.	1	2	3	4	5
9.	I am being pulled away from the shooting sport by financial reason.	1	2	3	4	5
10.	The physical effort I have put into the shooting sport makes it difficult to stop playing.	1	2	3	4	5

	Item	Strongly disagree	Some-what disagree	Neither agree nor disagree	Some-what agree	Strongly agree
11.	I really like shooting sport.	1	2	3	4	5
12.	I am dedicated to keep participating in the shooting sport.	1	2	3	4	5
13.	Once I attain a goal in the shooting sport, I challenge myself to continue improving.	1	2	3	4	5
14.	I would really miss the travel experiences I have if I no longer practice shooting sport.	1	2	3	4	5
15.	People would be upset if I didn't keep participating in shooting sport because they have invested so much.	1	2	3	4	5
16.	In shooting, I strive for the perfect performance.	1	2	3	4	5
17.	In shooting, I have put in a lot of training.	1	2	3	4	5
18.	People would be disappointed if I didn't keep participating this sport.	1	2	3	4	5
19.	I have a mentor who provides guidance in the shooting sport.	1	2	3	4	5
20.	People who are important to me attend the majority of my competitions in the shooting sport.	1	2	3	4	5
21.	I feel trapped in the shooting sport.	1	2	3	4	5
22.	People who are important to me are there for me after I perform poorly in the shooting sport.	1	2	3	4	5
23.	The time I have spent in the shooting sport makes it difficult to stop playing.	1	2	3	4	5
24.	I constantly try to learn from my mistakes in the shooting sport.	1	2	3	4	5
25.	When things get tough in this sport, people who are important to me provide comfort.	1	2	3	4	5
26.	It is almost impossible to participate in the shooting sport because of my work and study.	1	2	3	4	5

	Item	Strongly disagree	Some-what disagree	Neither agree nor disagree	Some-what agree	Strongly agree
27.	People who are important to me teach me the strategies of the shooting sport.	1	2	3	4	5
28.	I love to practice by shooting sport.	1	2	3	4	5
29.	In the shooting sport, I strive to be better than my opponents.	1	2	3	4	5
30.	I would really miss the things I learn in the shooting sport if I didn't play.	1	2	3	4	5
31.	I am willing to overcome any obstacle to keep participating this sport.	1	2	3	4	5
32.	Although I think about quitting the shooting sport, I feel I must keep playing.	1	2	3	4	5
33.	I push myself to win every time I compete in this shooting sport.	1	2	3	4	5
34.	I have spent a great deal of financial cost into this sport.	1	2	3	4	5
35.	People who are important to me teach me about the mental side of the shooting.	1	2	3	4	5
36.	Because of insufficient time, I have no time to participate enough in shooting sport.	1	2	3	4	5
37.	Because people who are important to me also play the shooting sport, it is assumed that I will keep participating.	1	2	3	4	5
38.	In the shooting sport, I strive to improve every aspect of my performance.	1	2	3	4	5
39.	I feel I am forced to keep participating in shooting sport.	1	2	3	4	5
40.	Other things in my life conflicts with playing this sport.	1	2	3	4	5
41.	I push myself to reach my full potential in the shooting.	1	2	3	4	5
42.	It is difficult to stop playing because of the personal discipline I have maintained in the shooting.	1	2	3	4	5

	Item	Strongly disagree	Some-what disagree	Neither agree nor disagree	Some-what agree	Strongly agree
43.	I feel I have to keep involving in the shooting, even though I don't want to.	1	2	3	4	5
44.	To improve in the shooting sport, I push myself to achieve the goals that I have set.	1	2	3	4	5
45.	Sport shooting is very pleasurable.	1	2	3	4	5
46.	I am determined to keep competing in the shooting sport.	1	2	3	4	5
47.	In this sport, I challenge myself to be better than everyone else.	1	2	3	4	5
48.	I have put a great deal of physical effort into the shooting.	1	2	3	4	5
49.	I am very attached to the shooting sport.	1	2	3	4	5
50.	I would really miss the competition in this sport if I no longer played.	1	2	3	4	5
51.	When I compete in this sport, people who are important to me cheer me on.	1	2	3	4	5
52.	People who are important to me expect me to keep playing this sport.	1	2	3	4	5
53.	I will continue to play this sport for as long as I can.	1	2	3	4	5
54.	People give me trustworthy advice about shooting sport rather than books and other resources.	1	2	3	4	5
55.	Competing and training in shooting sport makes me happy.	1	2	3	4	5
56.	It is difficult to quit because of the training I have put into this sport.	1	2	3	4	5
57.	In shooting, people provide useful instruction to improve my performance.	1	2	3	4	5
58.	I am willing to do almost anything to keep participating in shooting.	1	2	3	4	5

